



Model F1FR Series Quick Response Standard Spray

Model F1FR56 Sprinkler Types

Standard Upright
Standard Pendent
Conventional
Vertical Sidewall
Horizontal Sidewall

Model F1FR56 Recessed Sprinkler Types

Standard Pendent/F1/F2/FP
Horizontal Sidewall

Model F1FR56 Concealed Sprinkler Types

Standard Pendent

Model F1FR42, F1FRXLH & F1FR28 Sprinkler Types

Standard Upright
Standard Pendent

Model F1FR42, F1FRXLH & F1FR28 Recessed Sprinkler Types

Standard Pendent

Model F1FR56LL & F1FR42LL Low Lead Sprinkler Types*

Standard Pendent
Less than 0.25% Lead Content

Listing & Approvals

1. Underwriters Laboratories Inc. and Certified for Canada (cULus).
2. Factory Mutual Approvals (FM)
3. Loss Prevention Council (LPCB, UK)
4. VdS Schadenverhütung GmbH
5. *NSF Certified to NSF/ANSI Standard 61 Annex G
6. EC Certificate: 0786-CPD-40239 (RA1414), 0786-CPD-40251 (RA1425), 0786-CPD-40252 (RA1475)

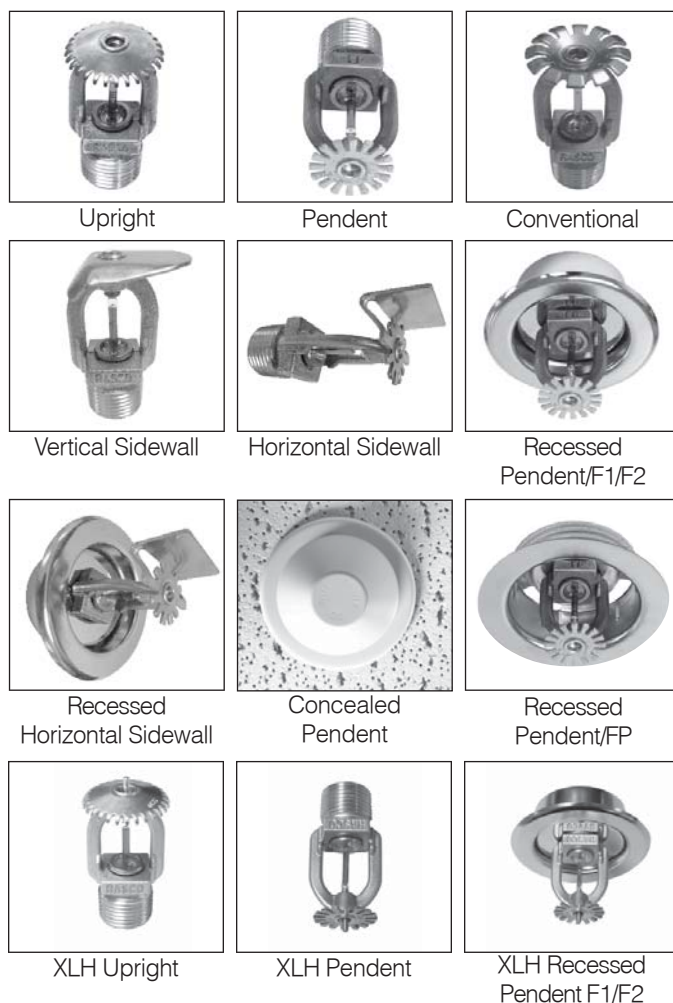
UL Listing Category

Sprinklers, Automatic & Open (VNIV)
Quick Response Sprinkler

Product Description

Reliable Models F1FR56, F1FR56LL, F1FR42, F1FR42LL, F1FRXLH & F1FR28 Series Sprinklers are quick response sprinklers which combine the durability of a standard sprinkler with the attractive low profile of a decorative sprinkler.

The Models F1FR56, F1FR56LL, F1FR42, F1FR42LL, F1FRXLH & F1FR28 Series Recessed automatic sprinklers utilize a 3.0 mm frangible glass bulb. These sprinklers have demonstrated response times in laboratory tests which are five to ten times faster than standard response sprinklers. This quick response enables the Model F1FR56, F1FR56LL,



F1FR42, F1FR42LL, F1FRXLH & F1FR28 Series sprinklers to apply water to a fire much faster than standard sprinklers of the same temperature rating.

The glass bulb consists of an accurately controlled amount of special fluid hermetically sealed inside a precisely manufactured glass capsule. This glass bulb is specially constructed to provide fast thermal response.

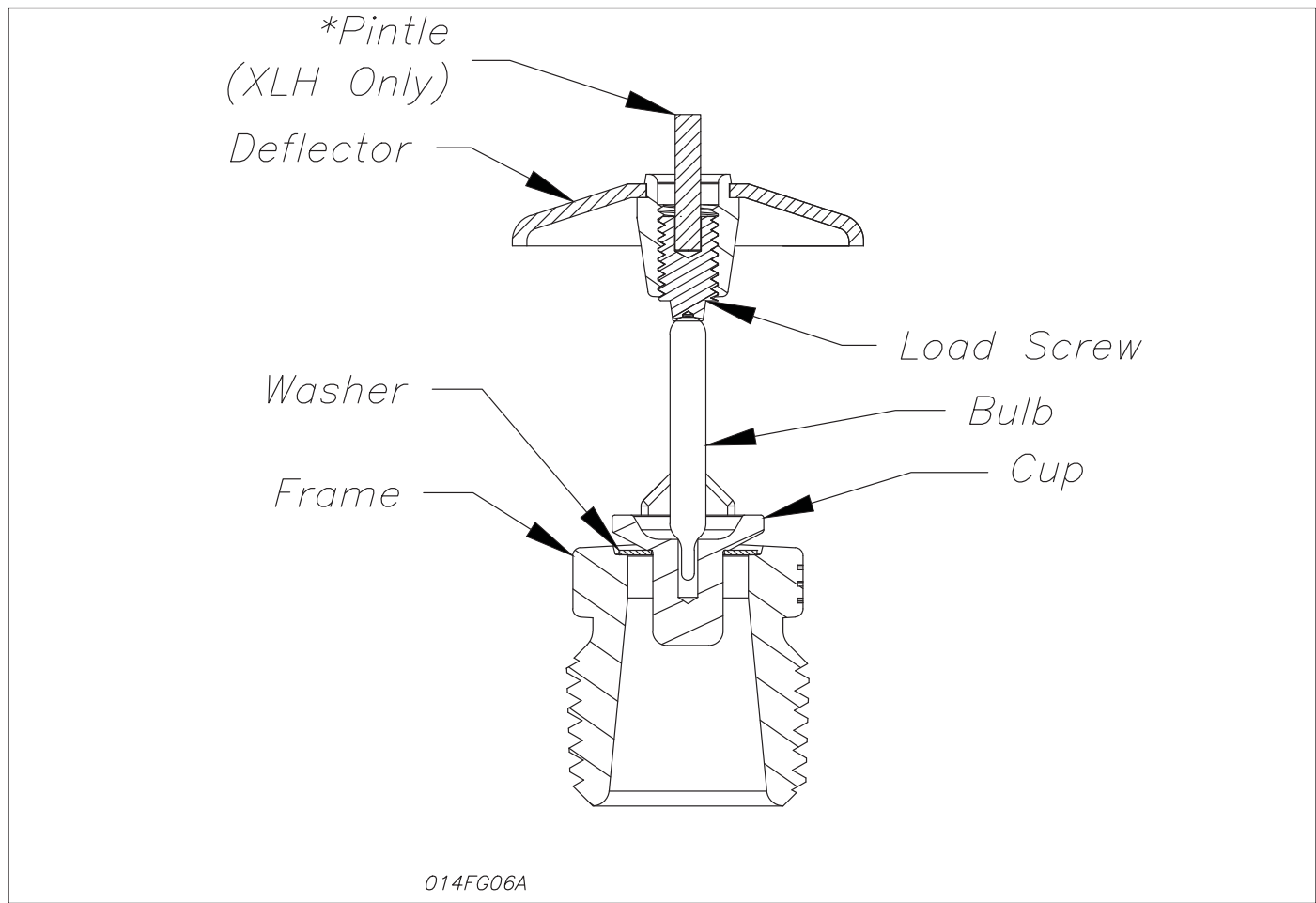
At normal temperatures, the glass bulb contains the fluid in both the liquid and vapor phases. The vapor phase can be seen as a small bubble. As heat is applied, the liquid expands, forcing the bubble smaller and smaller as the liquid pressure increases. Continued heating forces the liquid to push out against the bulb, causing the glass to shatter, opening the waterway and allowing the deflector to distribute the discharging water.



XLH Recessed
Pendent FP

Application

Quick response sprinklers are used in fixed fire protection systems: Wet, Dry, Deluge or Preaction. Care must be exercised that the orifice size, temperature rating, deflector style and sprinkler type are in accordance with the latest published standards of the National Fire Protection Association or the approving Authority Having Jurisdiction. Quick response sprinklers are intended for installation as specified in NFPA 13. Quick response sprinklers and standard response sprinklers should not be intermixed.



Technical data:

Models	Discharge Coefficient	Response	Thread Size	Max. Working Pressure	Min. Working Pressure	Temperature Rating	Finish
F1FR56 **F1FR56LL⁽¹⁾	K 5.6	Quick Response	1/2" NPT (R1/2)	175 PSI	7 PSI	See "Temperature Ratings" Table.	See "Finish Table"
F1FR42 **F1FR42LL⁽¹⁾ F1FRXLH	K 4.2						
F1FR28	K 2.8						

⁽¹⁾ Low Lead Sprinklers available only with Temperature Rating 200°F/93°C

Material Data:

Frame	Deflector	Load Screw	*Pintle	Cup	Washer	Bulb
DZR Brass QM Brass **Low Lead Brass	CDA Alloy 260, CDA Alloy 220 or CDA Alloy 510	CDA Alloy 360 or CDA Alloy 544	CDA Alloy 360 or CDA Alloy 544	CDA Alloy 651 or CDA Alloy 693	Nickel Alloy 440 or Alloy 360 coated with PTFE Adhesive Tape	Glass

Model F1FR56, Upright, Pendent & Conventional Sprinklers

Model F1FR42, F1FRXLH & F1FR28 Upright & Pendent Sprinklers

Installation Wrench: Model D Sprinkler Wrench

Installation Data:

Nominal Orifice	Thread	Nominal K Factor		Sprinkler	Approval	Sprinkler Identification Number (SIN)	
	Size	US	Metric	Height	Organization	Upright	Pendent
Standard-Upright (SSU) and Pendent Deflectors Marked to Indicate Position							
1/2" (15mm) ⁽¹⁾	1/2" NPT (R1/2)	5.6	80	2.25" (57mm)	1, 2, 3, 4, 6	RA1425 ⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾	RA1414 ⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾
7/16" (10mm)	1/2" NPT (R1/2)	4.2	60	2.25" (57mm)	1	RA1423 ⁽¹⁾⁽⁴⁾	RA1413 ⁽⁴⁾
3/8" (10mm)	1/2" NPT (R1/2)	2.8	40	2.25" (57mm)	1	RA1421 ⁽¹⁾⁽⁴⁾	RA1411 ⁽⁴⁾
Conventional-Install in Upright or Pendent Position							
15mm ⁽¹⁾	1/2" NPT (R1/2)	5.6	80	57mm	3, 4, 6	RA1475 ⁽³⁾	

⁽¹⁾ cULus listed corrosion resistant (Polyester coated) sprinkler.

⁽²⁾ Polyester coated FM approved sprinkler.

⁽³⁾ Polyester coated LPCB & VdS approved sprinkler RA1425, RA1414 & RA1475.

⁽⁴⁾ Electroless Nickel PTFE (Teflon®)* Plated - cULus listed Corrosion Resistant



Upright



Pendent



Conventional

Model F1FR56LL & F1FR42LL Pendent Sprinklers

Installation Wrench: Model D Sprinkler Wrench

Installation Data:

Nominal Orifice	Thread	Nominal K Factor		Sprinkler	Approval	Sprinkler Identification Number (SIN)
	Size	US	Metric	Height	Organization	Pendent
Standard-Pendent Deflectors Marked to Indicate Position						
1/2" (15mm) ⁽¹⁾	1/2" NPT (R1/2)	5.6	80	2.25" (57mm)	1, 5	RA1415
7/16" (11mm)	1/2" NPT (R1/2)	4.2	60	2.25" (57mm)	1, 5	RA1410

⁽¹⁾ cULus listed corrosion resistant (Polyester coated) sprinkler.



*DuPont Registered Trademark

Model F1FR56, F1FR42, F1FRXLH & F1FR28 Quick Response Recessed Pendent Sprinkler⁽¹⁾

Installation Wrench: Model GFR2 Sprinkler Wrench

Installation Data:

Nominal Orifice	Thread Size	K Factor		Sprinkler Height	Sprinkler Identification Number (SIN)
		US	Metric		
1/2" (15mm)	1/2" NPT (R1/2)	5.6	80	2.25" (57mm)	RA1414
7/16" (10mm)	1/2" NPT (R1/2)	4.2	60	2.25" (57mm)	RA1413
3/8" (10mm)	1/2" NPT (R1/2)	2.8	40	2.25" (57mm)	RA1411

⁽¹⁾ Refer to escutcheon data table for approvals & dimensions

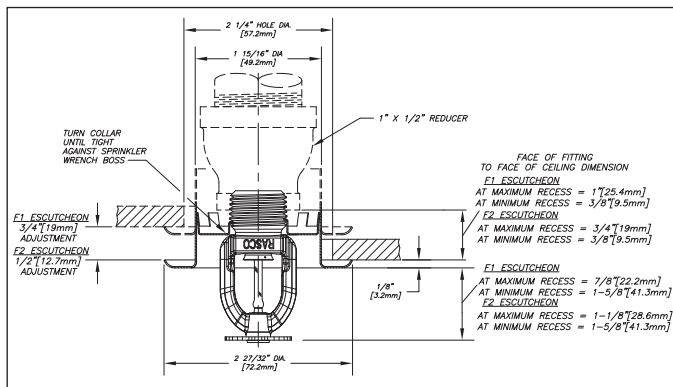
Model F1FR56LL & F1FR42LL Quick Response Recessed Pendent Sprinkler⁽¹⁾

Installation Wrench: Model GFR2 Sprinkler Wrench

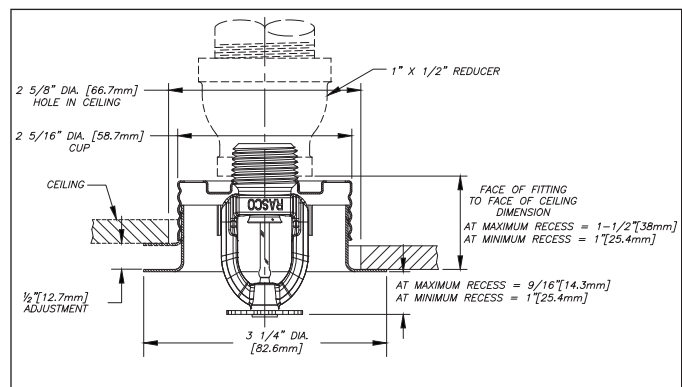
Installation Data:

Nominal Orifice	Thread Size	K Factor		Sprinkler Height	Sprinkler Identification Number (SIN)
		US	Metric		
1/2" (15mm)	1/2" NPT (R1/2)	5.6	80	2.25" (57mm)	RA1415
7/16" (10mm)	1/2" NPT (R1/2)	4.2	60	2.25" (57mm)	RA1410

⁽¹⁾ Refer to escutcheon data table for approvals & dimensions



Model F1FR56, F1FR56LL, F1FR42, F1FR42LL, F1FRXLH & F1FR28 F1 or F2



Model F1FR56, F1FR56LL, F1FR42, F1FR42LL, F1FRXLH & F1FR28 FP

Model F1FR56 Quick Response Vertical Sidewall Sprinkler

Installation Wrench: Model D Sprinkler Wrench

Installation Position: Upright or Pendent

Approval Type: Light Hazard Occupancy

Installation Data:

Nominal Orifice	Thread Size	Nominal K Factor		Sprinkler Height	Approval Organizations	Sprinkler Identification Numbers (SIN)
		US	Metric			
1/2" (15mm)	1/2" NPT (R1/2)	5.6	80	2.25" (57mm)	1, 2, 3	RA1485 ⁽²⁾⁽³⁾
15mm	1/2" NPT (R1/2)	5.6	80	2.25" (57mm)	3 ⁽¹⁾	

⁽¹⁾ LPC Approval is for pendent position only.

⁽²⁾ cULus Listed corrosion resistant (Polyester coated) sprinkler.

⁽³⁾ Electroless Nickel PTFE (Teflon®)* Plated - cULus listed Corrosion Resistant



Vertical Sidewall

Sprinkler Type	Deflector to Ceiling Distance (Min. - Max.)
Upright	4" (102mm) - 12" (305mm)
Pendent	4" (102mm) - 12" (305mm)

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Model F1FR56 Quick Response Horizontal Sidewall Sprinkler

Deflector: HSW

Installation Wrench: Model D Sprinkler Wrench

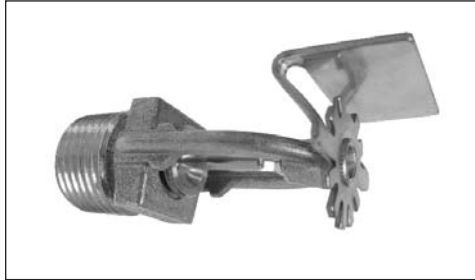
Installation Data: Horizontal Sidewall

Nominal Orifice	Thread Size	Nominal K Factor		Sprinkler Height	Approval Organizations and Type of Approval		Sprinkler Identification Numbers (SIN)
		US	Metric		Light Hazard	Ordinary Hazard	
1/2" (15mm)	1/2" NPT (R1/2)	5.6	80	2.63" (67mm)	1, 2	1	RA1435 ⁽¹⁾⁽²⁾⁽³⁾

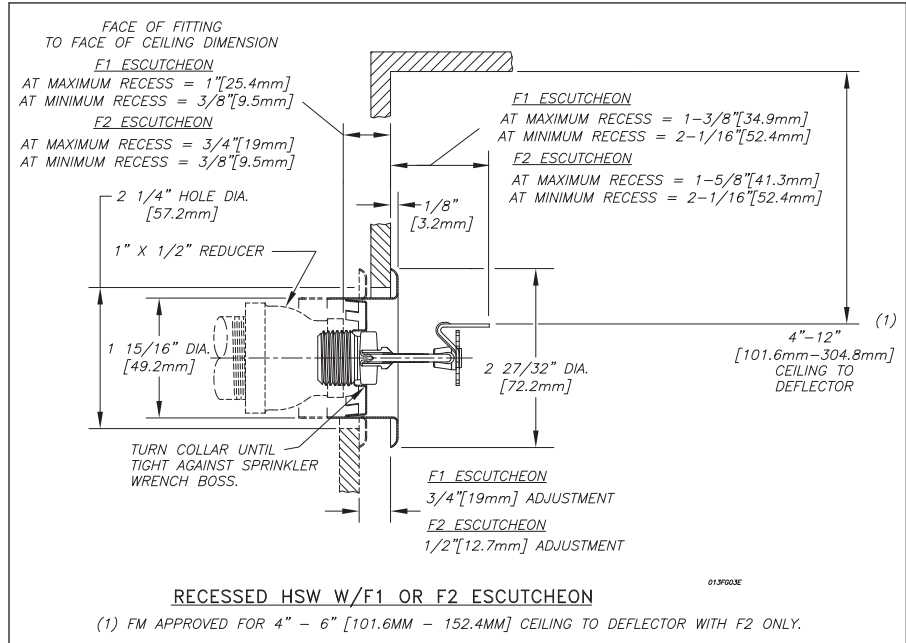
⁽¹⁾ cULus Listed corrosion resistant (Polyester coated) sprinkler.

⁽²⁾ Polyester coated FM approved sprinkler.

⁽³⁾ Electroless Nickel PTFE (Teflon®)* Plated - cULus listed Corrosion Resistant



Horizontal Sidewall



Note: For Recessed HSW Sprinklers use installation wrench GFR2.

cULus permits use with F1, F2 or FP escutcheons for "Light Hazard" only. While FM limits use for the same hazard with the F2 escutcheon only.

Model F1FR56 Quick Response Concealed Pendent Sprinklers

Installation Wrench: Model RC1 Sprinkler Wrench

Technical Data:

Nominal Orifice	"K" Factor		Thread Size	Model	Temp. Rating		Max. Ambient Temp	Bulb Color	Approvals	Sprinkler Identification Number(SIN)
	US	Metric			Sprinkler	Cover				
1/2" (15mm)	5.6	80	1/2" NPT	F1FR	135°F/57°C	135°F/57°C	100°F/38°C	Orange	1	RA1414
1/2" (15mm)	5.6	80	1/2" NPT	F1FR	155°F/68°C	135°F/57°C	100°F/38°C	Red	1, 4 ⁽¹⁾ , 6	RA1414
1/2" (15mm)	5.6	80	1/2" NPT	F1FR	175°F/79°C	165°F/74°C	100°F/38°C	Yellow	1	RA1414
1/2" (15mm)	5.6	80	1/2" NPT	F1FR	200°F/93°C	165°F/74°C	150°F/65°C	Green	1	RA1414

⁽¹⁾ For VdS only = 155°F/68°C Norbulb and 1/2" [12.7mm] adjustment.

Model F1FR56LL Quick Response Concealed Pendent Sprinklers

Installation Wrench: Model RC1 Sprinkler Wrench

Technical Data:

Nominal Orifice	"K" Factor		Thread Size	Model	Temp. Rating		Max. Ambient Temp	Bulb Color	Approvals	Sprinkler Identification Number(SIN)
	US	Metric			Sprinkler	Cover				
1/2" (15mm)	5.6	80	1/2" NPT	F1FR56LL	200°F/93°C	165°F/74°C	150°F/65°C	Green	1, 5	RA1414

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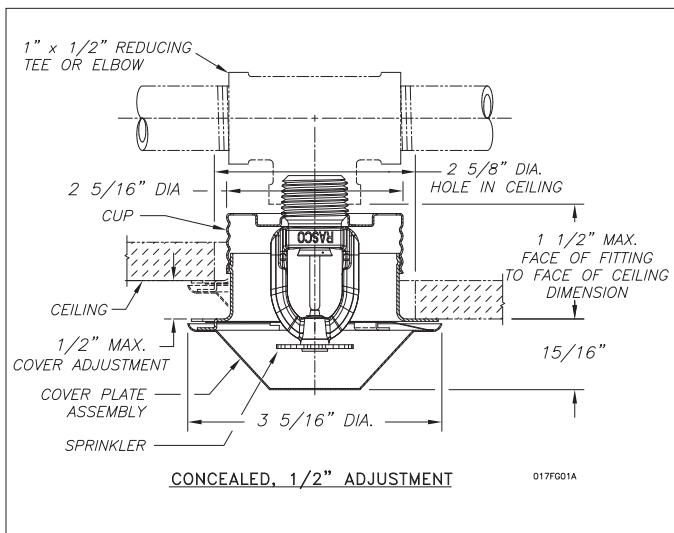


Figure 1

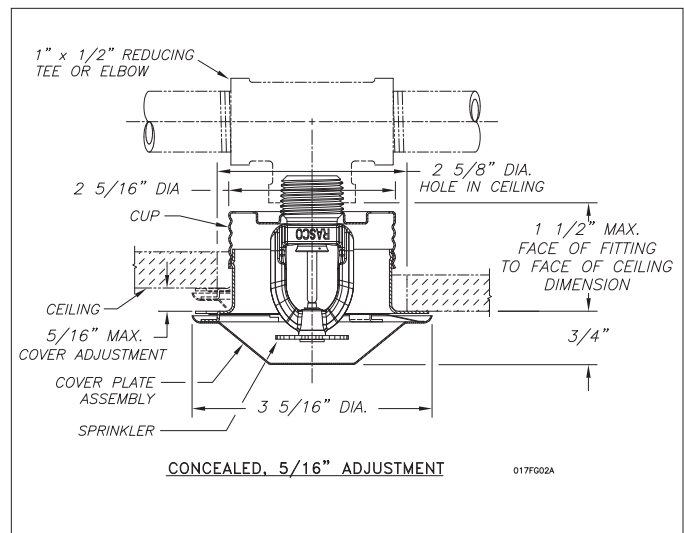


Figure 2

Installation Aid

A protective cap is included for use during installation.

Important: The F1FR56 Sprinkler with Model CCP cover plate is not an FM Approved combination.

Installation

Quick response sprinklers are intended for installation as specified in NFPA 13. Quick response sprinklers and standard response sprinklers should not be intermixed.

The Model F1FR56, F1FR56LL, F1FR42, F1FR42LL, F1FRXLH & F1FR28 Recessed Quick Response Sprinklers are to be installed as shown. The Model F1 or F2 Escutcheons illustrated are the only recessed escutcheons to be used with the Model F1FR56, F1FR56LL, F1FR42, F1FR42LL, F1FRXLH & F1FR28 Sprinklers. The use of any other recessed escutcheon will void all approvals and negate all warranties.

When installing Model F1FR56, F1FR56LL, F1FR42, F1FR42LL, F1FRXLH & F1FR28 Sprinklers, use the Model D Sprinkler Wrench. Use the Model GFR2 Wrench for installing F1FR56, F1FR56LL, F1FR42, F1FR42LL, F1FRXLH & F1FR28 Recessed Pendent Sprinklers. Any other type of wrench may damage these sprinklers.

NOTE: A leak tight 1/2" NPT (R1/2) sprinkler joint can be obtained with a torque of 8-18 ft-lbs (10,8 - 24,4 N-m). Do not tighten sprinklers over maximum recommended torque. It may cause leakage or impairment of the sprinklers.

The Models F1FR56/CCP & F1FR56LL/CCP Concealed Sprinkler use the 1/2" orifice, 1/2" NPT (R1/2), Model F1FR56 & F1FR56LL Pendent Sprinkler with a threaded Model CCP cup which is factory attached to the sprinklers. The Model F1FR56 Pndent is available in temperature rating of 135°F (57°C), 155°F (68°C), 175°F (79°C) or 200°F (93°C). The Model F1FR56LL Pendent is available only in a rating of 200°F (93°C). The concealed sprinkler assemblies are completed by the installation of the attractive low profile Model CCP push on cover plate assembly, rated 135°F (57°C) or 165°F (74°C) for the F1FR56 and 165°F (74°C) for the F1FR56LL. The cover plate and sprinkler cup assemblies are joined using a cover plate skirt with flexible tabs for threaded en-

gagement. A choice of two cover plate assemblies provide either 1/2" (13mm) or 5/8" (8mm) of cover adjustment,

Do not install these sprinklers in ceiling which have positive pressure in the space above.

After a 2 5/8" (67mm) diameter hole is cut in the ceiling, the sprinkler is easily installed with the Model RC1 Wrench. A Teflon* based thread sealant should be applied to the sprinkler threads only. The Model RC1 Wrench is then used to engage the sprinkler wrenching surfaces and to install the sprinkler in the fitting. When inserting or removing the wrench from the sprinkler/cup assembly, care should be taken to prevent damage to the sprinkler. **DO NOT WRENCH ON ANY OTHER PART OF THE SPRINKLER.** The cover plate is then pushed onto the cup. Final adjustment is made by hand turning the cover plate until the skirt flange makes full contact with the ceiling. Cover plate removal requires turning in the counter clockwise direction.

After installation, inspect all sprinklers to ensure that there is a gap between the cover plate and ceiling and that the four cup slots are open and free from any air flow impediment to the space above.

Concealed cover plate/cup assemblies are listed only for use with specific sprinklers. The use of any other concealed cover plate/cup assembly with the Model F1FR56 Pendent Sprinkler or the use of the Model CCP Concealed cover plate assembly on any sprinkler with which it is not specifically listed may prevent good fire protection and will void all guarantees, warranties, listings and approvals.

Glass bulb sprinklers have orange bulb protectors to minimize bulb damage during shipping, handling and installation. REMOVE THIS PROTECTION AT THE TIME THE SPRINKLER SYSTEM IS PLACED IN SERVICE FOR FIRE PROTECTION. Removal of the protectors before this time may leave the bulb vulnerable to damage. RASCO wrenches are designed to install sprinklers when covers are in place. REMOVE PROTECTORS BY UNDOING THE CLASP BY HAND. DO NOT USE TOOLS TO REMOVE THE PROTECTORS.

*DuPont Registered Trade Mark

Temperature Ratings

Classification	Sprinkler Temperature		Max. Ambient Temp.	Bulb Color
	°C	°F		
Ordinary	57	135	100°F (38°C)	Orange
Ordinary	68	155	100°F (38°C)	Red
Intermediate	79	175	150°F (66°C)	Yellow
Intermediate	93	200	150°F (66°C)	Green
High ⁽¹⁾	141	286	225°F (107°C)	Blue

⁽¹⁾ Not available for recessed sprinklers.

Escutcheon Data ⁽¹⁾

⁽¹⁾ SIN RA1435 – cULus permits use with F1, F2 or FP escutcheons for “light hazard” only, while FM limits use for same hazard with F2 escutcheon only.

Maintenance

The Model F1FR56, F1FR56LL, F1FR42, F1FR42LL, F1FRXLH and Model F1FR56, F1FR56LL, F1FR42, F1FR42LL, F1FRXLH & F1FR28 Recessed Sprinklers should be inspected and the sprinkler system maintained in accordance with NFPA 25. Do not clean sprinklers with soap and water, ammonia or any other cleaning fluids. Remove dust by using a soft brush or gentle vacuuming. Remove any sprinkler which has been painted (other than factory applied) or damaged in any way. A stock of spare sprinklers should be maintained to allow quick replacement of damaged or operated sprinklers. Prior to installation, sprinklers should be maintained in the original cartons and packaging to minimize the potential for damage to sprinklers that would cause improper operation or non-operation.

Sprinkler Types

Standard Upright
Standard Pendent
Conventional
Recessed Pendent
Vertical Sidewall
Horizontal Sidewall
Recessed Horizontal sidewall
Concealed pendent

Maximum Working Pressure

175 psi (12 bar)
100% Factory tested hydrostatically to 500 psi (34.5 bar)

Finishes ⁽¹⁾

Standard Finishes		
Sprinkler	Escutcheon	Cover plate ⁽¹⁾
Bronze	Brass	Chrome
Chrome Plated	Chrome	White
Polyester	Plated	
Coated ⁽⁴⁾⁽⁵⁾⁽⁶⁾	White Painted	
Special Application Finishes		
Sprinkler	Escutcheon	Cover plate ⁽¹⁾
Electroless Nickel PTFE(Teflon®) ^{*(7)}	Electroless Nickel PTFE (Teflon®) [*]	Bright Brass
Bright Brass ⁽³⁾	Bright Brass	Black Plating
Black Plated	Black Plated	Black Paint
Black Paint ⁽²⁾⁽⁶⁾	Black Paint	Off White
Off White ⁽²⁾⁽⁶⁾	Off White	Satin Chrome
Chrome Dull	Chrome Dull	

⁽¹⁾ Other finishes and colors are available on special order. Consult the factory for details. Custom color painted sprinklers may not retain their UL Corrosion resistance listing. Coverplate custom paint is semi-gloss, unless specified otherwise.

⁽²⁾ cULus Listed only.

⁽³⁾ 200°F (93°C) maximum.

⁽⁴⁾ cULus listed “corrosion resistance” applies to SIN Numbers RA1435 (HSW), RA1485(VSW), RA1425 (Upright), RA1414 (Pendent) and RA1415 (Pendent) in standard black or white. Corrosion resistance in other polyester colors is available upon request.

⁽⁵⁾ FM Approvals finish as “Polyester coated” applies to SIN Number RA1414, RA1435 and RA1425 in standard black or white.

⁽⁶⁾ LPCB and VdS Approved finish applies only to RA1425, RA1414 and RA1475.

⁽⁷⁾ cULus listed Corrosion Resistant

Ordering Information

Specify:

1. Sprinkler Model
2. Sprinkler Type
3. Orifice Size
4. Deflector Type
5. Temperature Rating
6. Sprinkler Finish
7. Escutcheon Type
8. Escutcheon Finish (where applicable)
9. Cover plate Model
10. Cover plate Thread size
11. Cover plate Temperature
12. Cover plate Adjustment
13. Cover plate Finish

Note: When Model F1FR56 Recessed sprinklers are ordered, the sprinklers and escutcheons are packaged separately.

Reliable...For Complete Protection

Reliable offers a wide selection of sprinkler components. Following are some of the many precision-made Reliable products that guard life and property from fire around the clock.

- Automatic sprinklers
- Flush automatic sprinklers
- Recessed automatic sprinklers
- Concealed automatic sprinklers
- Adjustable automatic sprinklers
- Dry automatic sprinklers
- Intermediate level sprinklers
- Open sprinklers
- Spray nozzles
- Alarm valves
- Retarding chambers
- Dry pipe valves
- Accelerators for dry pipe valves
- Mechanical sprinkler alarms
- Electrical sprinkler alarm switches
- Water flow detectors
- Deluge valves
- Detector check valves
- Check valves
- Electrical system
- Sprinkler emergency cabinets
- Sprinkler wrenches
- Sprinkler escutcheons and guards
- Inspectors test connections
- Sight drains
- Ball drips and drum drips
- Control valve seals
- Air maintenance devices
- Air compressors
- Pressure gauges
- Identification signs
- Fire department connection

The equipment presented in this bulletin is to be installed in accordance with the latest published Standards of the National Fire Protection Association, Factory Mutual Research Corporation, or other similar organizations and also with the provisions of governmental codes or ordinances whenever applicable. Products manufactured and distributed by Reliable have been protecting life and property for over 90 years, and are installed and serviced by the most highly qualified and reputable sprinkler contractors located throughout the United States, Canada and foreign countries.

Manufactured by



Reliable Automatic Sprinkler Co., Inc.

(800) 431-1588

(800) 848-6051

(914) 829-2042

www.reliablesprinkler.com

Sales Offices

Sales Fax

Corporate Offices

Internet Address



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Paper

Revision lines indicate updated or new data.

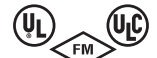
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FIG. 171N International Brass Ball Valves



Submittal Sheet

The 171N Threaded Ball Valves are UL listed and FM Approved for use in fire protection systems. Valves have a rugged, dependable design, meeting rigid specification for residential, commercial and industrial applications. The two piece 171N full port design is available in sizes 1/4" through 4". All valves conform to MSS-SP-110, MSS-SP-25 and Federal Specification WW-V-35B Type II, Class A Style 3. The valves are available in triple stem seal, hard chrome plated ball, blow-out proof stem, adjustable packing gland, a bubble tight shut off and a floating ball for an economical solution.



APPROVED
For Listing / Approval
details contact your
AnvilStar™ Representative.

MATERIAL SPECIFICATIONS

BODY: Brass, ASTM B124, Alloy C37700
RETAINER: Brass, ASTM B124, Alloy C37700
BALL: Brass, ASTM B124, Alloy C37700 Chrome Plated
STEM: Brass, ASTM B124, Alloy C37700 Nickel Plated
SEAT RING: PTFE
PACKING: PTFE
PACKING NUT: Steel, Zinc
PACKING GLAND: Brass, ASTM B124, Alloy C37700 Nickel Plated

FRICTION WASHER: PTFE
STEM O-RING: NBR 75 Shore A
HANDLE: Steel, Zinc Plated to 2", Aluminum to 4"
HANDLE COVER: Yellow PVC Coated to 2", Yellow Enamel to 4"
HANDLE NUT: Steel, Zinc Plated

AVAILABLE OPTIONS *

LEVER HANDLE: 1/4" - 4"

PROJECT INFORMATION:

Project:	
Date:	Phone:
Architect / Engineer:	
Contractor:	
Address:	
Notes 1:	
Notes 2:	

APPROVAL STAMP:

FIG. 171N International Brass Ball Valves



Submittal Sheet

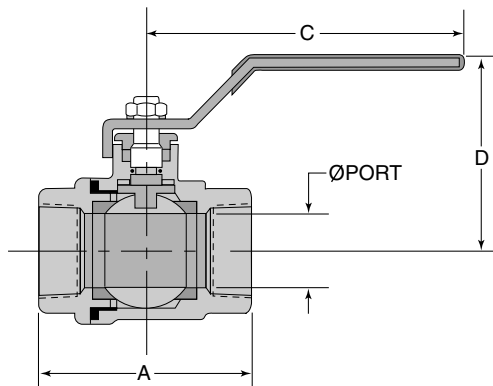
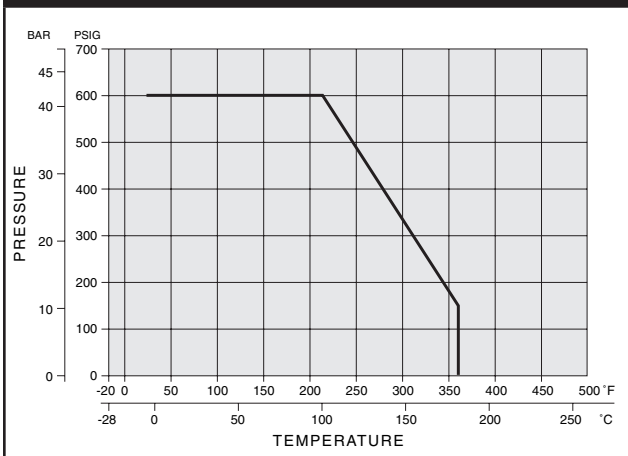


FIGURE 171N FULL PORT - DIMENSIONS

Nominal Size	Port Dia.	A	C	D	Cv	Approx. Wt. Ea.
NPS/mm	in./mm	in./mm	in./mm	in./mm		lbs/kg
1/4"	.39	2.02	3.85	1.75	6	.30
8	10	51	98	44		.14
3/8"	.39	2.02	3.85	1.75	7	.28
10	10	51	98	44		.13
1/2"	.59	2.44	3.85	1.88	19	.41
15	15	62	98	48		.19
3/4"	.78	2.71	4.80	2.28	35	.67
20	20	69	122	58		.31
1"	.96	3.07	4.80	2.44	50	1.0
25	24	78	122	62		.50
1 1/4"	1.25	3.42	6.02	3.07	104	2.0
32	32	87	153	78		.92
1 1/2"	1.57	3.89	6.02	3.34	268	3.1
40	40	99	153	85		1.4
2"	1.96	4.33	6.37	3.79	309	4.2
50	50	110	162	96		1.9
2 1/2"	2.56	5.59	8.07	5.02	629	8.0
65	65	142	205	128		3.7
3"	3.15	6.45	8.07	5.45	1018	12.0
80	80	164	205	138		5.9
4"	3.94	7.60	10.23	6.34	1622	22
100	100	193	260	161		10

PRESSURE VS. TEMPERATURE



NOTES

3. Rate of Flow Calculations for liquids:
To determine the flow rate of a liquid passing through a valve, use the following formula:

$$Q_L = C_v \left(\sqrt{\frac{\Delta P}{S_L}} \right)$$

Where: Q_L = flow of liquid in gallons per minute (GPM)

C_v = flow coefficient

ΔP = pressure drop (PSI)

S_L = specific gravity of liquid